

## **REMARKS**

This Amendment is submitted with a Request for Continued Examination. The Official Action dated April 23, 2008 has been carefully considered. Accordingly, the changes presented herewith, taken with the following remarks, are believed sufficient to place the present application in condition for allowance. Reconsideration is respectfully requested.

By the present Amendment, claims 1, 7, 11, 15, 20, 28, 37, 38 and 42 have been amended. Support for the Amendment may be found in the canceled claims, as well as paragraphs [0020], [0024], [0027], [0028] , [0029] and [0030]. Since these changes do not involve any introduction of new matter, entry is believed to be in order and is respectfully requested.

In the Official Action, the Examiner made a number of objections. The Examiner objected to the specification and currently amended claims 11, 17, 28, and 37 for failing to provide proper antecedent basis. Also, the Examiner objected to currently amended claim 17 due to informalities and currently amended claims 15 and 42 for not properly identifying changes. The above referenced claims have been corrected in accordance with the Examiner's suggested modifications for compliance. Additionally, currently amended claims 15 and 42 have been identified as "Currently Amended" in order to avoid confusion. Reconsideration is respectfully requested.

### **35 U.S.C. §112 - Claims 7, 11 and 28**

In the Official Action, currently amended claim 7 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Accordingly, currently amended claim 7 has been amended as follows, "The method of claim 5, wherein the plurality of start bits

have at least two bits of different voltage values." Applicant respectfully submits that currently amended claim 7 is in condition for allowance.

In the Official Action, currently amended claims 11 and 28 were rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. As such, the phrase "acts on the valid or invalid first serial data stream" has been removed from currently amended claim 11 and replaced with "recognizing an incorrect received first serial data stream; and detecting a framing error or a link error from the incorrect received first serial data stream." Support for this amendment can be found in the last sentence of paragraph [0027] and paragraphs [0026] and [0028]. A corresponding amendment was also made to currently amended claim 28. An additional amendment was made to currently amended claim 11 in order to place the claim in compliance with the written description requirement. The relevant portion of currently amended claim 11 was amended to read "receiving a command at the print head from the printer host, the command comprising a request for a data stream." Applicant respectfully submits that currently amended claims 11 and 28 are in condition for allowance.

Since the currently amended claims 7, 11 and 28 are in condition for allowance, the Applicant respectfully submits that the rejections under 35 U.S.C. §112 have been overcome, based on the amendments and remarks in the preceding paragraphs, and reconsideration is respectfully requested.

35 U.S.C. §103 - Claims 1, 4-11, 14-15, 17-18, 20, 23-28 and 31-43

In the Official Action, currently amended claims 1, 7, 11, 15, 20, 28, 37, 38 and 42 and claims 4-6, 8-11, 14, 17-18, 23-27, 31-36, 39-41 and 43 were rejected under 35 U.S.C. 103(a) as being unpatentable due to obviousness. All of the rejections are predicated upon various combinations of: Skene et al. (U.S. Patent 6,616,260) in view of Hepworth et al. (U.S. Patent

3,975,712), Bullock et al. (U.S. Patent 5,835,817) in view of Hepworth, or Skene in view of Ono et al. (U.S. Patent 6,943,911). However, the Applicants respectfully submit that the Examiner has failed to establish a prima facie case of obviousness.

The Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). The analysis need not seek out precise teachings directed to the specific subject matter of the claim but can take into account the creative steps that a person of ordinary skill in the art would employ. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). However, "rejections on obviousness grounds cannot be sustained by merely conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). As will be detailed below, the Applicants respectfully contend that all of the above combinations lack the requisite rational underpinning. Therefore, a person of ordinary skill in the art would not employ the steps proffered by the Examiner. Hence, all of the rejections are traversed because, without a rational underpinning, the Examiner's rejections are mere conclusory statements that cannot sustain a prima facie case of obviousness.

Claims: 1, 4-10, 20, 23-28, 31-43

The Examiner's rejection of presently amended claims 1, 7, 20, 28, 37, 38 and 42 and claims 4-6, 8-10, 23-27, 31-36, 39-41 and 43 is contingent upon Skene as a primary reference in view of Hepworth. However, the Applicants assert that such a combination cannot support a legal conclusion of obviousness. As such, the Examiner has failed to establish a prima facie case of obviousness and the rejections have been traversed.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in

the art. MPEP § 2143.01(III) (citing *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731 (2007)).

The proposed combination cannot establish a prima facie case of obviousness when the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.” MPEP § 2143.01(VI) quoting *In re Ratti*, 270 F.2d 810, at 813, 123 USPQ 349, at 352 (CCPA 1959).

The elements of Skene, the primary reference, are a plurality of electrically conductive lines that are utilized individually to transmit data and for an electrical test to find an error with the line (Column 2, Lines 16-21). The electrical test of each individual conductive line is combined with parity testing to enable Skene to correct errors to support continuous operation (Column 8, Lines 40-50). These elements of a plurality of conductive lines and electrical tests of each conductive line support the basic principle of error correction for uninterrupted operation. Yet, Hepworth delivers serialized data from a single conductive line (Column 7, Lines 25-30). The suggested combination would require substantial modification of the elements of Skene. The plurality of conductive lines would need to be reduced to a single conductive line for the transmission of serial data. It then follows that the electrical testing could not be utilized to correct errors because the error correction relies on having a plurality of conductive lines. Therefore, this combination would change the basic principle of error correction for continuous operation that Skene was designed to operate. As such, all of the Examiner's rejections that rely on a combination of the primary reference of Skene with Hepworth to produce serial data from a single output cannot support a prima facie case of obviousness. Therefore, the Applicants respectfully submit that the Examiner's rejection of presently amended claims 1, 7, 20, 28, 37, 38

and 42 and claims 4-6, 8-10, 23-27, 31-36, 39-41 and 43 is traversed and reconsideration is respectfully requested.

Furthermore, the Applicants contend that the Examiner's stated purpose for combining Skene with Hepworth to reduce latency (Official Action Pg. 12, Line 6) fails to assert a rational underpinning. If the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP § 2143.01(V) citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The intended purpose of Skene, the prior art invention being modified, is the timing in the application of ink drops to a medium (Column 1, Lines 20 - 27) with uninterrupted operation (Column 1, Lines 60-64). Skene utilizes 26 bit memory to accomplish this purpose (Column 3, Lines 45 -50). However, Hepworth only has the capability to transmit and receive eight or nine bit words (Column 4, Lines 57-61 and Fig. 1). Additionally, as is known in the art of asynchronous communication, the transmission must include start and stop bits in transmission (Column 7, Lines 25 - 27). These bits are transferred at a rate consistent with the clock frequency (Column 7, Lines 42 - 45). It should be noted that Skene would not be operable using Hepworth's serial transmission because Hepworth is only capable of transmitting 9 bits of data, which is far short of the 26 bits utilized by Skene. Furthermore, even if Hepworth could be modified to transmit 26 bits of data, the operation would be discontinuous. Each transmission would be on a 28 bit delay (26 bits plus start & stop bits). Such a pause would cause delays of 28 clock cycles and render Skene inoperable by mistiming ink drops. In opposition to the required rational underpinning, the Examiner asserted that a combination of Skene and Hepworth would reduce latency and such a reduction was a reason to combine the two (Official Action Pg. 12, Line 6). Latency can be defined as the time delay between the moment something is initiated,

and the moment one of its effects begins or becomes detectable. However, as shown above, the combination of Skene and Hepworth would yield 28 cycle latency issue. Therefore, given the Skene requirement for continuous operation and well timed ink application, the 28 cycle latency would render the suggested combination inoperable for Skene's intended purpose. As such, there can be no suggestion or motivation to make the modification proposed by the Examiner and the combination lacks the requisite rational underpinning to establish a prima facie case of obviousness. Therefore, the Applicants respectfully submit that the Examiner's rejection of presently amended claims 1, 7, 20, 28, 37, 38 and 42 and claims 4-6, 8-10, 23-27, 31-36, 39-41 and 43 is traversed and reconsideration is respectfully requested.

Claims: 11, 14-15, 17-18

The Examiner's rejection of presently amended claims 11 and 15 and claims 14 and 17-18 is contingent upon Bullock as a primary reference in view of Hepworth. However, the Applicants assert that such a combination cannot support a legal conclusion of obviousness. As such, the Examiner has failed to establish a prima facie case of obviousness and the rejections have been traversed.

If the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP § 2143.01(V) citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The intended purpose of Bullock, the prior art invention being modified, is to communicate serial input and output of data over a single wire (Column 4, Lines 19-20). The reading and writing of data can include up to 16K bytes of data (Column 4, Lines 22-24). However, Hepworth only has the capability to convert data from parallel to serial **OR** serial to parallel (Column 2, Lines 10-15). The transmission of serial data requires the operation of the

transmit data register 32.(Column 7, Lines 20-24). The reception of serial data requires the use of the receiver data register 38. (Column 7, Lines 60 - 65) Yet, the operation of receiving serial data and transmitting serial data are mutually exclusive (Table 1 and Column 6, Lines 4-27). As can easily be seen, Hepworth cannot receive serial data and then later transmit the data as serial information. Therefore, combining Bullock with Hepworth would produce data in parallel format which would be inoperable for the purpose of communicating serial data along a single wire as required by Bullock. Furthermore, even if Hepworth could be modified to transmit and receive data in serial format (perhaps through the use of Hepworth twice), the Examiner's stated purpose of the reduction of latency would be frustrated. Latency can be defined as the time delay between the moment something is initiated, and the moment one of its effects begins or becomes detectable. The Applicants contend that the suggested combination would have the effect of drastically increasing the time delay due to an extraordinarily slow transmission rate. The proposed modification would require the 16K bytes of data to pass through at least four registers (Hepworth Fig. 1). Additionally, Hepworth is configured to handle up to 9 bits, or a little over 1 byte of data. Therefore, the data would pass through 1 byte at a time with a time lag due to the multiple shifts of the data. Since the combined device would be inoperable there is no suggestion or motivation to combine. Additionally, the motivation suggested by the Examiner has been disproved. Therefore, the suggested combination of Bullock and Hepworth lacks the requisite rational underpinning to establish a prima facie case of obviousness. Pursuant to a failure to establish a prima facie case of obviousness, the Applicants respectfully submit that the Examiner's rejection of presently amended claims 11 and 15 and claims 14 and 17-18 is traversed and reconsideration is respectfully requested.

Claims: 26, 27, 40, 43

The Examiner's rejection of claims 26, 27, 40 and 43 is contingent upon Skene as a primary reference in view of Ono. However, the Applicants assert that such a combination cannot support a legal conclusion of obviousness. As such, the Examiner has failed to establish a prima facie case of obviousness and the rejections have been traversed.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. MPEP § 2143.01(III) (citing *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731 (2007)).

The proposed combination cannot establish a prima facie case of obviousness when the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.” MPEP § 2143.01(VI) quoting *In re Ratti*, 270 F.2d 810, at 813, 123 USPQ 349, at 352 (CCPA 1959).

The elements of Skene, the primary reference, are a plurality of electrically conductive lines that are utilized individually to transmit data and for an electrical test to find an error with the line (Column 2, Lines 16-21). The electrical test of each individual conductive line is combined with parity testing to enable Skene to correct errors to support continuous operation (Column 8, Lines 40-50). These elements of a plurality of conductive lines and electrical tests of each conductive line support the basic principle of error correction for uninterrupted operation. Yet, Ono is a manifestation of the design intent is to enable a multi-connection communication with the least possible number of signals (Column 1, Lines 60-65). Additionally, Ono utilizes serial data (abstract) and reduces the number of conductive traces for reasons of cost reduction



(Column 2, Lines 24-26). The suggested combination would require the removal of the plurality of conductive lines motivated by a desire to reduce cost. However, cost reduction alone cannot support the substantial redesign of Skene to remove the plurality of conductive lines. As was shown above, Skene requires the multiple conductive lines to provide error correction as a prerequisite for continuous operation. Although a reduction of the number of conductive traces would reduce the cost of Skene, it would render Skene worthless because it would lose its primary function of continuous operation. Hence, the substantial redesign of elements would eliminate the basic principle of Skene. Therefore, the Examiner's rejections that rely on a combination of the primary reference of Skene with Ono cannot support a prima facie case of obviousness. Therefore, the Applicants respectfully submit that the Examiner's rejection of claims 26, 27, 40 and 43 is traversed and reconsideration is respectfully requested.

Finally, the Applicants wishes to thank Examiner Storey and Examiner Poon for their time and consideration during a telephonic interview on August 5, 2008. The telephonic interview was attended by the undersigned representative, one the undersigned's associates Nicholas Rericha and the undersigned's summer law clerk Eric Foster. During the telephonic interview, the present invention, the need for an improvement over the methods of the prior art, and the teachings of the cited prior art in the current rejection were discussed. The rationale for combining the cited prior art references were also discussed. Agreement was not reached regarding the efficacy of the Examiners' purported rationale. The Examiners did not concede that there was a lack rational underpinning for the cited prior art combination. Further discussion focused on the definition of synchronous communication and latency. The discussion concluded without reaching an agreement. Subsequently, the undersigned stated that a Request for

Continued Examination would be filed. After which, the Examiners then suggested that the Applicants should to detail the Applicants' contentions in writing and amend the claims by incorporating further limitations including more specifics and a more definitive description of synchronous communication. The Applicants in this amendment have amended the claims as discussed in the telephonic interview. Reconsideration is respectfully requested.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment, to Deposit Account No. 04-1133, including any filing fees under 37 CFR 1.16 for presentation of extra claims and any patent application processing fees under 37 CFR 1.17.

It is believed that the above represents a complete response to the Examiner's objections and rejections under 35 U.S.C. §§103 and places the present application in condition for allowance. Reconsideration and an early allowance are requested. Please charge any additional fees required in connection with the present communication, or credit any overpayment, to Deposit Account No. 04-1133.

Respectfully submitted,

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